

**Commonwealth of Kentucky  
Division for Air Quality**

**PERMIT APPLICATION SUMMARY FORM**

Completed by: Timothy J. Rust

GENERAL INFORMATION:

Name:	Griffin Industries, Inc.
Address:	4221 Alexandria Pike Cold Spring, Kentucky 41076
Date application received:	March 16, 2007
SIC/Source description:	2077, Animal and Marine Fats & Oils
Source ID #:	21-141-00026
Source A.I. #:	2753
Activity #:	APE200760001
Permit number:	V-05-025, Revision 3

APPLICATION TYPE/PERMIT ACTIVITY:

<input type="checkbox"/> Initial issuance	<input type="checkbox"/> General permit
<input checked="" type="checkbox"/> Permit modification	<input type="checkbox"/> Conditional major
<u>Administrative</u>	<input checked="" type="checkbox"/> Title V
<input checked="" type="checkbox"/> Minor	<input checked="" type="checkbox"/> Synthetic minor
<u>Significant</u>	<input checked="" type="checkbox"/> Operating
<input type="checkbox"/> Permit renewal	<input type="checkbox"/> Construction/operating

COMPLIANCE SUMMARY:

<input type="checkbox"/> Source is out of compliance	<input type="checkbox"/> Compliance schedule included
<input checked="" type="checkbox"/> Compliance certification signed	

APPLICABLE REQUIREMENTS LIST:

<input type="checkbox"/> NSR	<input checked="" type="checkbox"/> NSPS	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> PSD	<input type="checkbox"/> NESHAPS	<input type="checkbox"/> Other
<input type="checkbox"/> Netted out of PSD/NSR	<input type="checkbox"/> Not major modification per 401 KAR 51:001, 1(116)(b)	

MISCELLANEOUS:

- ☐ Acid rain source
- ☐ Source subject to 112(r)
- ☐ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☐ Diagrams or drawings included
- ☐ Confidential business information (CBI) submitted in application
- ☐ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

### EMISSIONS SUMMARY:

Pollutant	Actual (tpy) <sup>1</sup>	Potential (tpy) <sup>2</sup>
PM/PM <sub>10</sub>	18.1/15.7	96.2/77.2
SO <sub>2</sub>	47.2	238
NO <sub>x</sub>	15.7	238
CO	4.1	90.5
VOC	0.8	140.0
HCl	N/D	9.0
Source wide HAPs	N/D	10.5

1- Actual based on 2005 EIS Survey

2- Potential based on worst-case scenarios per pollutant where limited by federally enforceable emission and operating limits for SO<sub>2</sub>, NO<sub>x</sub>, and HCl as appropriate

### **SOURCE DESCRIPTION:**

Griffin Industries, Inc. owns and operates a rendering facility in Russellville Kentucky, Logan County. The facility processes inedible animal byproducts, dead stock, and spent restaurant cooking oils to manufacture final products including meat and bone meal, poultry meal, tallow and yellow grease. These final products are typically used as ingredients in the agriculture feed industry. The major emission combustion sources at this facility include Emission Units 01 and 02 (EU 01 & EU 02), identical 50.2 MMBtu/hr (1200 BHP Coal Master) steam boilers and Emission Units 04, 05 and 06 (EU 04, EU 05, and EU 06), three identical 50.2 MMBtu/hr (1200 BHP Hurst) steam boilers currently under construction. Each steam boiler is permitted to burn Residual and Distillate Fuel Oils, Recycled Cooking Oil, On-Spec Used Oil, and Natural Gas. The major emission process sources include Emission Unit 3 (EU 03), the rendering process line and finish product handling that includes a scrubber system for particulate and odor control; and Emission Unit 07 (EU 07), two new rendering process lines currently under construction that includes a wastewater evaporator and finish product handling. Vapors from both new processing lines and the wastewater evaporator will be ducted to a new High-Intensity Scrubber System. This system includes a venturi scrubber which will control particulates and odors, followed by a packed tower scrubber, then ending with final treatment in a two-stage, cross-flow room air scrubber before being vented to the atmosphere. The final product handling system is equipped with a pneumatic transfer baghouse for particulate control.

### **CURRENT PERMITTING ACTION: MINOR REVISION-V-05-025 REVISION 3**

The Division for Air Quality received an application on March 16, 2007 for a revision to Griffin's existing Title V operating permit V-05-025 Revision 2. Griffin is requesting that the permit be modified for EU 04, EU 05, and EU 06 due to revisions to 40 CFR 60 subpart Dc recently published in the Federal Register (72 FR 27, February 9, 2007) correcting a prior omission that exempts an affected facility from the PM Standards under 40 CFR 60.43c that combusts only fuel oil containing 0.50 weight percent sulfur or less or a mixture of 0.5 weight percent sulfur oil with other fuels. The Division has determined that this proposed revision qualifies as a Minor Permit Revision pursuant to 401 KAR 52:020 Section 14. Specifically, the federally enforceable limit restricting fuel oil sulfur weight percent already exists in the permit, therefore, there are no significant changes to existing monitoring, reporting, or recordkeeping and this is not a modification under Title 1 since there are no physical changes, changes of method in operation, or any emissions increase from any pollutant.

### **EMISSIONS AND OPERATING CAPS DESCRIPTIONS CHANGES:**

- The following is a list of permit changes for EU 04, EU 05, & EU 06:

#### **Under Emissions Limitations:**

Added the condition: Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (e)(4), affected facilities that combust only oil containing no more than 0.50 weight percent sulfur or a mixture of 0.5 percent sulfur oil with other fuels are not subject to a PM standard under 40 CRF 60.43c

Revised the PM limit from 40 CFR 60.43c (e)(1) to: Pursuant to 401 KAR 59:015, Section 4 (1)(b), particulate matter emissions shall not exceed 0.10 lb/MMBtu actual heat input each based on a three hour rolling average. Compliance with the particulate standard is assured while burning natural gas. The permittee may assure compliance with the particulate standard while burning residual or distillate fuel oils, On-Spec Used Oil, or Recycled Cooking Oil by calculating particulate matter emissions using the following formula: Particulate Matter emissions = [(the most current emission factor from AP-42 or the most recent stack test in lb/gallon) divided by (As-fired oil heating value in MMBtu/gallon)]

Revised the Opacity limit to: Pursuant to 401 KAR 59:015 Section 4 (2), visible emissions shall not exceed twenty (20) percent opacity except:

- (1) that a maximum of forty (40) percent opacity shall be permissible for not more than six (6) consecutive minutes in any sixty (60) consecutive minutes during cleaning of the fire box or blowing soot;
- (2) for emissions during building a new fire for the period required to bring up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Deleted the Condition: Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (d), the particulate matter and opacity standards under this subsection apply at all times, except during periods of startup, shutdown, or malfunction.

## **PAST PERMITTING ACTION: SIGNIFICANT REVISION-V-05-025 REVISION 2**

The Division for Air Quality received an application on June 26, 2006 for a revision to their existing Title V operating permit V-05-025 Revision 1. Griffin is proposing the construction of three new custom built steam boilers and of a new process building that will house two new rendering processing lines, a wastewater evaporator, and a finish product equipment. The new major emission sources will include emission units 04, 05 and 06 (EU 04, EU 05, and EU 06), three identical 50.2 MMBtu/hr (1200 BHP Hurst) steam boilers each capable of burning Residual and Distillate Fuel Oils, Recycled Cooking Oil, On-Spec Used Oil, and Natural Gas; emission unit 07 (EU 07), both rendering process lines, the wastewater evaporator, and a finish product handling. Vapors from both processing lines and the wastewater evaporator will be ducted to a new High-Intensity Scrubber System. This system includes a venturi scrubber which will control particulates and odors, followed by a packed tower scrubber, then ending with final treatment in a two-stage, cross-flow room air scrubber before being vented to the atmosphere. The final product handling system is equipped with a pneumatic transfer baghouse for particulate control.

This source will remain a Title V/ Synthetic Minor Source and will not be subject to Prevention of Significant Deterioration (PSD) Review due to the voluntary emission and operating limits being proposed. Griffin is proposing to retain its current 238 tons per year (tpy) source-wide sulfur dioxide emission limit and to add a source-wide 238 tpy nitrogen oxides emission limit. Additionally, Griffin is limiting the On-Spec Used Oil to 5,000,000 gallons per year and 600 ppm halogen content so as to reduce the Potential to Emit (PTE) of Hydrogen Chloride (HCl) to 10 tpy threshold for a single Hazardous Air Pollutant (HAP) and combined HAPs below 25 tpy.

## **EMISSIONS AND OPERATING CAPS DESCRIPTIONS:**

- **Source-wide**

To preclude 401 KAR 51:017, Prevention of Significant Deterioration (PSD) of Air Quality, source-wide sulfur dioxide and nitrogen oxide emissions shall not exceed 238 tons per year each. The permittee shall determine source-wide sulfur dioxide and nitrogen oxide emissions by calculating a monthly total and maintaining a twelve-month rolling average as specified in the permit.

To preclude 40 CFR 63 Subpart DDDDD, NESHAPs for Institutional, Commercial, and Industrial Boilers and Process Heaters, after the applicability date of September 13, 2007, total source-wide Hydrogen Chloride (HCL) emissions shall not exceed 9.0 tpy and combined HAPs shall not exceed 22.5 tpy. The permittee has elected to take federally enforceable operating limits including total source-wide On-Spec Used Oil burned as fuel shall not exceed 5,000,000 gallons per year and each shipment shall not exceed 600 ppm of Total Halogens. The permittee shall determine source-wide HCL emissions by calculating a monthly total, maintaining a twelve-month rolling average, and keeping records of On-Spec Used Oil burned as specified in the permit.

## **EMISSION AND OPERATING CAPS DESCRIPTION: (CONTINUED)**

### **• EMISSION UNITS 01 & 02 STEAM BOILERS**

Pursuant to 401 KAR 59:015 Section 5 (1)(c), sulfur dioxide emissions shall not exceed 1.16 lbs/MMBtu actual heat input each, based on a three-hour rolling average. Pursuant to 401 KAR 59:015 Section 4 (1)(c), particulate emissions shall not exceed 0.32 lbs/MMBtu actual heat input, based on a three-hour rolling average. The permittee may assure compliance with the sulfur dioxide and particulate emissions standards by calculating emissions with formulas specified in the permit. Compliance with the sulfur dioxide standard is assured while burning recycled cooking oil or natural gas. Compliance with the particulate standard is assured while burning natural gas.

Pursuant to 401 KAR 59:015 Section 4 (2), visible emissions shall not exceed twenty (20) percent opacity except that a maximum of forty (40) shall be permissible for not more than six (6) consecutive minutes in any sixty (60) consecutive minutes during cleaning the fire box or blowing soot; and except during building a new fire.

Pursuant to 40 CFR 279, 40 CFR 761.20, and to preclude 40 CFR 63 Subpart DDDDD, On-Specification (On-Spec) Used Oil shall not exceed the allowable levels below:

#### **On-Spec Used Oil Specifications**

<u>Constituent/Property</u>	<u>Allowable Level</u>
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	600 ppm maximum
Flash Point	100 °F minimum
PCBs	less than 2 ppm

The permittee shall demonstrate compliance with each of the above Used Oil Specifications by using approved EPA or ASTM test methods or a certified used oil analysis pursuant to 40 CFR 279 and 40 CFR 761.20. The analysis and recordkeeping shall apply to each amount prior to blending even if it is to be blended with ninety (90) percent virgin oil.

To preclude 401 KAR 51:017, the sulfur content of the Distillate and Residual Fuel Oils and On-Spec Used Oil shall not exceed 0.5 percent by weight per ASTM standards; and the fuel sulfur content shall not exceed 2.0 grains/1000 SCF for natural gas and 21 ppm for Recycled Cooking Oil.

Pursuant to 401 KAR 50:045, performance tests used to demonstrate compliance with the particulate matter standard shall be conducted according to Reference Method 5. This performance test shall be conducted while burning a representative liquid fuel and may be conducted on either emission unit 01 or 02, the results from which shall be considered representative of the emission unit not tested.

## **EMISSION AND OPERATING CAPS DESCRIPTION: (CONTINUED)**

### **• EMISSION UNITS 03 & 07 RENDERING PROCESSES**

Pursuant to 401 KAR 59:010 Section 3(2), each unit shall have emissions of particulate matter (PT) less than or equal to 10.90 lbs/hr based on a three hour average. If the process weight rate for the unit is 1,000 lbs/hr or less, then the limit on emission of particulate matter is 2.34 lb/hr. If the process weight rate for the unit is above 1,000 lbs/hr, then the limit on emissions of particulate matter from the unit can be determined (in lbs/hr) by taking the process weight rate for materials introduced into the unit (in tons/hr), raising the process weight rate value to the 0.62 power, and multiplying by 3.59 (maximum =  $3.59 \times \text{process weight}^{0.62}$ ). Compliance with the allowable particulate standard is demonstrated by utilizing PT performance test on the rendering process at its facility in Butler, Kentucky in February 2004. With an identical cooker and scrubbers similar to those at Russellville, the Butler facility average PT measured emissions were 0.23 lb/hr. This test showed the PT emissions were around 1% of the applicable standard.

Pursuant to 401 KAR 59:010 Section 3(1), no person shall cause, allow, or permit any continuous emission into the open air from a control device or stack which is equal to or greater than twenty (20) percent opacity based on six minute averages.

Pursuant to 401 KAR 53:010 (State Enforceable Only), at any time when 1 unit volume of ambient air is mixed with 7 volume units of odorless air, the mixture must have no detectable odor. This odor standard, pursuant to 401 KAR 53:005 Section 2(2), shall be applicable only when the Cabinet receives a complaint with respect to odors from the source.

### **• EMISSION UNITS 04, 05 & 06 STEAM BOILERS**

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.42c (d), sulfur dioxide emissions shall not exceed 0.50 lb/MMBtu actual heat input each based on a 30-day rolling average; or, as an alternative, the permittee shall not combust oil that contains greater than 0.5 weight percent sulfur. Compliance with the sulfur dioxide standard is assured while burning natural gas or recycled cooking oil. Pursuant to 40 CFR 60.42c (h) (1), the permittee may determine compliance with the sulfur dioxide standard while burning distillate oil with a fuel supplier certification for each shipment. Pursuant to 40 CFR 60.42c (h)(2), due to boiler size, the permittee may determine compliance with the sulfur dioxide standard while burning residual fuel oil or On-Spec Used Oil by sampling after each shipment per 40 CFR 60.46c (d)(2) and analyzing each sample using approved EPA or ASTM test methods.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (e)(1), particulate matter emissions shall not exceed 0.03 lb/MMBtu actual heat input each based on a three-hour rolling average. Compliance with the particulate standard is assured while burning natural gas. The permittee may assure compliance with the particulate standard while burning residual or distillate fuel oils, On-Spec Used Oil, or Recycled Cooking Oil by calculating particulate matter emissions using the formula listed in the permit.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (c), visible emissions shall not exceed twenty (20) percent opacity based on six minute averages except for one 6-minute period per hour of not more than 27 percent opacity.

## **EMISSION AND OPERATING CAPS DESCRIPTION: (CONTINUED)**

### **• EMISSION UNITS 04, 05 & 06 STEAM BOILERS (CONTINUED)**

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.42c (i), the sulfur dioxide emission limits and fuel oil sulfur limits under this subsection apply at all times, including, periods of startup, shutdown, and malfunction. Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (d), the particulate matter and opacity standards under this subsection apply at all times, except during periods of startup, shutdown, or malfunction.

Pursuant to 40 CFR 279, 40 CFR 761.20, and to preclude 40 CFR 63 Subpart DDDDD, On-Spec Used Oil shall not exceed the allowable levels below:

<u>On-Spec Used Oil Specifications</u>	
<u>Constituent/Property</u>	<u>Allowable Level</u>
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	600 ppm maximum
Flash Point	100 °F minimum
PCBs	less than 2 ppm

The permittee shall demonstrate compliance with each of the above Used Oil Specifications by using approved EPA or ASTM test methods or a certified used oil analysis pursuant to 40 CFR 279 and 40 CFR 761.20. The analysis and recordkeeping shall apply to each amount prior to blending even if it is to be blended with ninety (90) percent virgin oil.

To preclude 401 KAR 51:017, the sulfur content of the Distillate and Residual Fuel Oils and On-Spec Used Oil shall not exceed 0.5 percent by weight per ASTM standards; and the fuel sulfur content shall not exceed 2.0 grains/1000 SCF for natural gas and 21 ppm for Recycled Cooking Oil.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.8, within 60 days after achieving the maximum production rate which the affected facility will be operated, but not later than 180 days after initial startup following installation; the permittee shall conduct an initial performance test to demonstrate compliance with the sulfur dioxide, particulate, and opacity standards for each emission unit.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.45c, Reference Method 5, Method 5B, or Method 17 shall be used to measure the concentration of particulate matter in addition to procedures listed in 40 CFR.45c (a). Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.45c (a)(8), Reference Method 9 (6-minute average of 24 observations) shall be used for determining the opacity of stack emissions.

Pursuant to 401 KAR 60.005, incorporating by reference 40 CFR 60.11 (e)(1), the initial compliance demonstration for opacity shall be conducted concurrently with the initial compliance demonstration for particulates except as provided for in 40 CFR 60.11 (e). Pursuant to 401 KAR 50:045, the initial compliance demonstration for particulates shall be conducted while burning a representative liquid fuel.

**EMISSION AND OPERATING CAPS DESCRIPTION: (CONTINUED)**

• **EMISSION UNITS 04, 05 & 06 STEAM BOILERS (CONTINUED)**

Pursuant to 401 KAR 60.005, incorporating by reference 40 CFR 60.44c (h), for distillate oil only, where the permittee seeks to demonstrate compliance with the sulfur dioxide standards based on fuel supplier certification, the initial compliance demonstration shall consist of the certification, this being the certification from the fuel supplier as described under 40 CFR 60.48c (f)(1). Pursuant to 401 KAR 60.005, incorporating by reference 40 CFR 60.44c (g), where the permittee seeks to demonstrate compliance with the fuel oil sulfur limits based on shipment fuel sampling, the initial compliance demonstration shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in each emission unit to demonstrate that the oil contains 0.5 weight percent sulfur or less.